

Before the  
Federal Communications Commission  
Washington, D.C. 20554

In the Matter of )  
Federal-State Joint Board on )  
Universal Service: )  
Promoting Deployment and )  
Subscribership in Unserved )  
and Underserved Areas, Including )  
Tribal and Insular Areas )

CC Docket No. 98-050

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COMMENTS OF SKYBRIDGE, L.L.C.

SkyBridge, L.L.C. ("SkyBridge") hereby submits its comments in response to the Notice of Proposed Rulemaking (the "NPRM") released in the above-captioned proceeding regarding increasing the deployment of telecommunication services to unserved and underserved areas of the country.

Satellite systems such as SkyBridge offer tremendous potential for achieving the Commission's Universal Service goals, not just for simple voice service, but also for the advanced telecommunications services that are quickly becoming as essential as voice service. By ensuring its policies support such new technologies and are integrated into the Universal Service framework, the Commission can take a significant step forward in providing rural access to the telecommunications tools that will become indispensable in the next century.

**I. INTRODUCTION**

As the Commission is aware, SkyBridge is an applicant for a Commission license for authority to launch and operate the "SkyBridge System," a global Ku-band nongeostationary orbit ("NGSO") fixed satellite service ("FSS") system, which will

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provide a range of data, voice, and video broadband services.<sup>1/</sup> SkyBridge will offer interactive broadband and narrowband telecommunications with fiber optic-like connectivity, and will link users to local servers as well as to terrestrial broadband and narrowband networks. The broadband services that SkyBridge will offer include high-speed Internet access and on-line services, video-conferencing and video-telephony, telemedicine, multimedia entertainment services, telecommuting, LAN interconnection, and infrastructure links for telephony, wireless local loops and mobile communication; the narrowband services will include voice, video-conferencing and backup long haul connection.

Thus, immediately upon commencing service in late 2002, SkyBridge could provide high-quality, cost-effective basic and advanced telecommunications services to even the most remote areas of the country. Given the difficulty and cost of providing such service through terrestrial means, the FCC must ensure access to alternative delivery systems, such as the SkyBridge System, by expanding access to the Universal Service Fund for broadband satellite systems.

The Commission's current regulatory framework for addressing the country's universal service needs is centered on applying technologies optimized for deployment in urban areas to solve the problem of telecommunications services to rural areas. As a result, the USF is based on the premise that serving rural areas is inherently

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<sup>1/</sup> See Application of SkyBridge L.L.C. for Authority to Launch and Operate the SkyBridge System, File No. 48-SAT-P/LA-97, February 28, 1997; Amendment, File No. 89-SAT-AMEND-97, July 3, 1997; Amendment, File No. SAT-AMD-19980630-00056, June 30, 1998; Amendment, File No. SAT-AMD-19990108-00004, January 8, 1999. The application, as amended, was placed on public notice on March 23, 1999. See Report No. SAT-00013.

more expensive than serving urban areas. This premise is true *only so long as the Commission focuses on applying expensive terrestrial technologies to provide rural service*. As these comments will explain further, by expanding access to the USF to technologies, such as NGSO FSS, that are optimized for providing service to low population density and remote areas, a much more efficient and cost-effective use of the USF can be achieved.

## **II. SATELLITE TECHNOLOGIES ARE THE MOST COST-EFFECTIVE WAY OF PROVIDING A COMPLETE RANGE OF SERVICES TO RURAL AREAS.**

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A comparison of the relative costs of deployment for varying technologies is crucial to a determination regarding the most efficient use of the scarce Universal Service Funds. SkyBridge submits that upon examination of the relative costs of terrestrial and satellite technologies, the cost of deploying a broadband satellite connection is significantly less than the current cost of deploying and maintaining a simple voice circuit or low speed data network to rural areas.

### **A. Cost of Deploying Limited Terrestrial Service in Rural Areas is Very High**

Rural areas of the United States are characterized by small numbers of users scattered over wide geographic regions, the exact opposite characteristics of the urban suburban populations that terrestrial wireline technologies are designed to serve efficiently.<sup>2/</sup> As an example, the average loop length for telephone companies receiving

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<sup>2/</sup> A great deal of information about the cost of providing service in rural areas is available from the USDA's Rural Utility Service (RUS). RUS administers a telecommunications lending program, which it describes as being aimed at "creating public - private partnerships to finance the construction of the telecommunications infrastructure in rural America." As part of its lending  
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funding from the USDA's Rural Utility Service is 20,330 feet whereas the average length of a Regional Bell Operating Company ("RBOC") loop is only 7,500 feet.<sup>3/</sup> Since subscriber density and usage in rural areas is much lower than urban areas, the return on investment in that additional infrastructure is much lower. Most RUS companies have between 200 and 400 subscribers per exchange, yielding an average per subscriber cost of \$6,000, compared to \$800 for an urban area.<sup>4/</sup> Using proxy models for calculating the cost per loop per month, the Rural Policy Research Institute (RURPI) has verified the wide disparity in costs of serving rural and non-rural areas. RURPI estimates that while the average monthly cost per loop for the RBOCs (which service mainly non-rural areas) is \$23.99 to \$31.20 (depending on whether the BCPM 3.0 or HAI 5.0A cost proxy models are used, respectively), the average for telecommunications companies serving rural areas is \$44.28 to \$65.69, respectively.<sup>5/</sup>

Terrestrial wireless service does not appear to be a significantly lower-cost alternative to wireline technologies. Nortel Networks estimates that fixed wireless access

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program, RUS collects data on its borrowing companies. This data serves as a useful proxy for general statistics on rural telecommunications carriers and the costs they incur in providing service.

<sup>3/</sup> Rowley, Tom, Rural Telecommunications: Why Your Community Isn't Connected and What You Can Do About It, TVA Rural Studies Staff Paper 99-1, January 1999.

<sup>4/</sup> Egan, Bruce L., Improving Rural Telecommunications Infrastructure, prepared for the Tennessee Valley Authority, [http://www.rural.org/workshops/rural\\_telecom/egan/](http://www.rural.org/workshops/rural_telecom/egan/).

<sup>5/</sup> Glass, Victor, "The Adoption of Proxy Cost Models by Telecommunication Regulators as the Means to Calculate Universal Service Support: What is at Stake for Rural America?" P99-4, February 15, 1999 (available at <http://rupri.org/pubs/archive/old/telecomm/p99-4/index.html>).

networks that will deliver wireline voice quality and at least 56 kbps data speed "can be deployed in rural areas for "\$1,500 to \$10,000 per customer (including customer premise equipment)."<sup>6/</sup> Nortel stated that "[t]he higher cost estimate would apply in the very low density areas and still represents a high capital cost per subscriber without some form of universal service subsidy."<sup>7/</sup>

Thus, both terrestrial wireline and wireless solutions -- some of which can provide only voice and low speed data capability -- would require significant Universal Service Funding to implement. Neither offers a cost-effective solution to the Commission's objective of providing broadband service to remote areas.

**B. Satellite Technologies Can Provide Voice Service and Broadband Applications in a Cost-Effective Manner**

Unlike the terrestrial networks that the Universal Service Fund currently supports, SkyBridge's satellite system is designed particularly to serve markets outside of urban areas. Moreover, unlike the terrestrial solutions, the SkyBridge system will provide high-speed Internet access and other new media applications, in addition to the traditional voice services. SkyBridge will accomplish this at a projected end user cost which is lower than the costs of providing voice and low-speed data services through terrestrial means.

The one-time subscriber-acquisition cost for SkyBridge will vary from \$1,300 to \$1,900. The variation in cost is due mainly to differences in installation costs and estimates of the final cost of the CPE. The standard residential terminal is targeted to

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<sup>6/</sup> Comments of Nortel Networks in Extending Wireless Telecommunications Services to Tribal Lands, WT Docket No. 99-206 ("Tribal Lands"), at 4.

<sup>7/</sup> Id. at n.6.

cost on the order of \$750 per terminal. Monthly subscription costs for residential end users will be \$30 to \$35 per month for unlimited usage at speeds of up to 20 Mbps receive and 2 Mbps send.<sup>8/</sup> Attached hereto as Appendix A is a chart which provides a summary of the relative costs for various terrestrial wireline, wireless and NGSO FSS services to rural and remote areas.

It is likely that, as is the case with DBS CPE and cellular/PCS mobile hand sets, the cost of the SkyBridge terminal will be subsidized by the service provider in return for long-term service contracts. Nonetheless, some residents of rural and remote areas still may not be able to afford the initial CPE installation costs for access to a NGSO FSS system, just as they could not afford the real cost of acquiring terrestrial service. But subsidizing those costs is exactly what the Universal Service Fund is designed to do. In revamping the Universal Service Fund to take into account new technologies and achieving the Commission's objective of providing broadband access to all Americans, the Commission should include support for satellite-delivered services, such as those to be provided by SkyBridge.

**C. Satellite Technologies Provide a More Efficient Means of Meeting the Commission's Universal Service Goals**

By subsidizing the use of terrestrial technologies designed to serve concentrated population areas to provide service to rural and remote areas, the current structure of Universal Service promotes a highly inefficient use of resources.

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<sup>8/</sup> This is a fixed, flat fee that includes access to Internet, voice and data services. There are no additional Internet Service Provider, interconnection or other telecommunications service provider fees associated with this service. These are all factored into the monthly service fee. SkyBridge will also offer a professional terminal capable of three to five times the performance of its residential terminals.

Transplanting these urban technologies inevitably gives rise to the concept of “high-cost areas” that drive USF policy. Satellite systems such as SkyBridge’s do not have high-cost areas, and can efficiently address Universal Service needs.

The geographic and economic considerations that make service to rural and remote areas economically inefficient and, therefore, unattractive to terrestrial networks, are well-known and need not be belabored here. The point is that these problems do not confront NGSO FSS systems. Put simply, these systems present an opportunity to overcome the historic discrimination that rural and remote areas have suffered due to their economic and geographic realities. End users, whether living in Seattle, Washington, or Barrow, Alaska, can access NGSO FSS systems, such as SkyBridge, directly from their homes or offices, through use of a small (approximately 50 cm) satellite dish, and the service will cost the same amount and be of the same quality whether the end-user is in Seattle or Barrow.

SkyBridge recognizes that many rural telecommunications service providers rely heavily on the Universal Service Fund to support their terrestrial technologies and is not advocating removing subsidies from terrestrial providers. Indeed, since SkyBridge and other broadband satellite technologies will not be deployed until the year 2002, terrestrial technologies will continue to play a very important role in addressing the Universal Service needs of the United States. But in designing the universal service system, the Commission should recognize the advantages of using the Universal Service Fund to support access to satellite services when they become available.

### III. **BROADBAND ACCESS SHOULD BE SUPPORTED BY THE UNIVERSAL SERVICE FUND.**

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Currently, the Commission does not include Internet access or other advanced telecommunications services within the basket of services covered by USF.<sup>9/</sup> This limited list of USF services may have been appropriate even five years ago. Now, however, that limitation borders on the unconscionable. The Commission must expand the list to encompass broadband access or else risk widening the gulf between "information have and have-nots."

As Secretary Daly recently confirmed at the Commerce Department's December 9, 1999, Digital Divide Summit -- echoing the words of President Clinton from earlier that day -- broadband access will better the lives of individual citizens in more ways than can be envisioned, let alone enumerated here. It will provide access to medical and educational services and is essential for the economic survival of remote and rural areas. As more and more companies move to e-commerce, high-quality high-speed access to the Internet will be a prerequisite for doing business. More than ever before, companies are locating where there is an advanced telecommunications network.

Comments filed in the Commission's Tribal Lands proceeding underline the importance of providing access to more than just basic phone services. NTCA stressed that access to advanced telecommunications services is "particularly

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<sup>9/</sup> NPRM at fn. 34 (Universal support mechanisms are available for single-party service; voice grade access to the public switched network; DTMF signaling or its functional equivalent; access to emergency services, interexchange service, and directory assistance and, for qualifying low-income customers, toll limitation services).



important to rural areas” since “[g]eographically isolated areas will rely on distance learning and telemedicine to remain viable.”<sup>10/</sup> The Salt River Pima-Maricopa Indian Community and the National Tribal Telecommunication Alliance echoed these concerns, stating that “Indians, like all Americans, must have access to those advanced capabilities, such as Internet access and high-speed data services, that are becoming a necessity in today’s information economy.”<sup>11/</sup>

The Commission must broaden the scope of services supported by the USF, to include satellite-based services. Terrestrial services cannot provide the solution. Satellite technology will provide the most wide-spread access to broadband network services and therefore deserve the Commission’s support.

### CONCLUSION

The current levels of deployment and subscribership in remote and rural areas will not improve significantly -- and these areas will fall farther behind in the information race -- if the Commission continues to depend on a terrestrial model for provision of universal service. As satellite systems which can serve remote and rural areas are deployed, the Commission should begin to rely on these systems to

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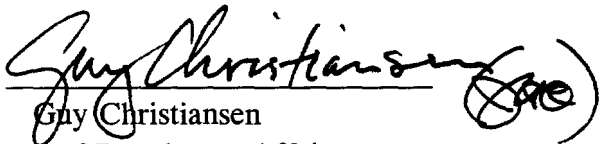
<sup>10/</sup> Comments of NCTA at 5. See also Comments of Dr. John Gitlin, Dr. Ray Kilcoyne and Dr. Spero Manson at 4, requesting that the FCC “consider the demands of medical images as it develops policies for providing services to underserved areas.”

<sup>11/</sup> Joint Comments of the Salt River Pima-Maricopa Indian Community and the National Tribal Telecommunication Alliance at 8.

provide universal service. At the same time, the Commission should broaden the definition of universal service to include broadband services.

Respectfully submitted,

SKYBRIDGE L.L.C.

By:   
Guy Christiansen  
Director of Regulatory Affairs  
3 Bethesda Metro Center, Suite 700  
Bethesda, MD 20814  
Ph: 301-657-6263

Of Counsel:

Jeffrey H. Olson  
Laura B. Sherman  
PAUL WEISS RIFKIND  
WHARTON & GARRISON  
1615 L Street, N.W, Suite 1300  
Washington, DC 20036  
Ph: 202-223-7300

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## APPENDIX A

<b>Technology</b>	<b>Terrestrial Wireline</b>	<b>Terrestrial Wireless</b>	<b>Broadband Satellite (NGSO FSS)</b>
Voice Capability	Yes	Yes	Yes
Data Capability	Up to 56 kbps Upgrades limited by distance from Central Office	At least 56 kbps	Up to 20 Mbps
Customer Acquisition Cost	\$6,000	\$1,500 to \$10,000, depending on subscriber density	\$1,300 to \$1,900
Monthly Fee	\$44-\$65	--	\$30-\$35